

WHAT IS CLAIMED IS:

1. A particulate filter regenerating device comprising:

a regeneration timing determining section configured to determine a regeneration timing to initiate regeneration of a particulate filter by combusting particulate matter that has accumulated in the particulate filter at least when the exhaust gas temperature is equal to or greater than a prescribed temperature; and

a regeneration control section configured to execute control to combust particulate matter based on the regeneration timing determined by the regeneration timing determining section.

2. The particulate filter regenerating device recited in claim 1, wherein

the regeneration timing determining section includes an accumulated particulate quantity section configured to detect the quantity of particulate matter that has accumulated within the particulate filter, and

the regeneration timing determining section is further configured to determine the regeneration timing to regenerate the particulate filter when either

the accumulated particulate quantity reaches a prescribed quantity, or

the accumulated particulate quantity is less than the prescribed

quantity and the exhaust gas temperature is equal to or greater

than the prescribed temperature.

3. The particulate filter regenerating device recited in claim 1, wherein

the regeneration timing determining section includes an accumulated particulate quantity section configured to detect the quantity of particulate matter that has accumulated within the particulate filter, and

the regeneration timing determining section is further configured to determine the regeneration timing to regenerate the particulate filter when either

the accumulated particulate quantity reaches a first prescribed quantity, or

the accumulated particulate quantity reaches a second prescribed

quantity that is smaller than the first prescribed quantity and the

exhaust gas temperature is equal to or greater than the prescribed temperature.

4. The particulate filter regenerating device recited in claim 1, wherein
5 the regeneration timing determining section includes an accumulated particulate quantity section configured to detect the quantity of particulate matter that has accumulated within the particulate filter, and
the regeneration timing determining section is further configured to determine the regeneration timing to regenerate the particulate filter when either
10 the accumulated particulate quantity reaches a prescribed quantity, or the exhaust gas temperature is equal to or greater than the prescribed temperature.

5. The particulate filter regenerating device recited in claim 1, wherein
15 the regeneration timing determining section includes an accumulated particulate quantity section configured to detect the quantity of particulate matter that has accumulated within the particulate filter, and
the regeneration timing determining section is further configured to determine the regeneration timing to regenerate the particulate filter when either
20 the accumulated particulate quantity reaches a prescribed quantity, or the exhaust gas temperature is equal to or greater than the prescribed temperature after a prescribed travel distance has been reached.

6. The particulate filter regenerating device recited in claim 1, wherein
25 the regeneration timing determining section includes an accumulated particulate quantity section configured to detect the quantity of particulate matter that has accumulated within the particulate filter, and
the regeneration timing determining section is further configured to determine the regeneration timing to regenerate the particulate filter when either
30 the accumulated particulate quantity reaches a prescribed quantity, or a first prescribed travel distance has been reached.

7. The particulate filter regenerating device recited in claim 6, wherein
the regeneration timing determining section is further configured to determine the
regeneration timing to regenerate the particulate filter when a second prescribed travel
distance has been reached that is smaller than the first prescribed travel distance and the
5 exhaust gas temperature is equal to or greater than the prescribed temperature.

8. The particulate filter regenerating device recited in claim 1, wherein
the regeneration control section is further configured to execute control of at least
one regeneration control device to raise the temperature of the exhaust gas above the
10 temperature that would normally exist.

9. The particulate filter regenerating device recited in claim 1, wherein
the regeneration timing determining section includes a sensor that detects the
exhaust gas temperature upstream of the particulate filter.

10. The particulate filter regenerating device recited in claim 1, wherein
the regeneration timing determining section is configured to determine that the
exhaust gas temperature is equal to or greater than the prescribed temperature based on the
vehicle speed in order to regenerate the particulate filter.

11. The particulate filter regenerating device recited in claim 1, wherein
the regeneration timing determining section is configured to determine that the
exhaust gas temperature is equal to or greater than the prescribed temperature based on at
least one operating condition of the engine in order to regenerate the particulate filter.

12. An engine exhaust gas cleaning device comprising:
a particulate filter configured to be installed in an exhaust passage of an engine and
configured to collect particulate matter from the exhaust gas; and
a particulate filter regenerating device configured to regenerate the particulate filter,
30 the particulate filter regenerating device including
a regeneration timing determining section configured to determine a
regeneration timing to regenerate a particulate filter by

combusting particulate matter that has accumulated in the particulate filter when at least the exhaust gas temperature is equal to or greater than the prescribed temperature; and a regeneration control section configured to execute control for
5 combusting particulate matter based on the regeneration timing determined by the regeneration timing determining section.

13. The engine exhaust gas cleaning device recited in claim 12, wherein the regeneration timing determining section includes a sensor that detects the
10 exhaust gas temperature upstream of the particulate filter.

14. The engine exhaust gas cleaning device recited in claim 12, wherein the regeneration timing determining section is configured to determine that the exhaust gas temperature is equal to or greater than the prescribed temperature based on the
15 vehicle speed in order to regenerate the particulate filter.

15. The engine exhaust gas cleaning device recited in claim 12, wherein the regeneration timing determining section is configured to determine that the exhaust gas temperature is equal to or greater than the prescribed temperature based on at
20 least one operating condition of the engine in order to regenerate the particulate filter.

16. The engine exhaust gas cleaning device recited in claim 12, wherein the regeneration timing determining section includes an accumulated particulate quantity section configured to detect the quantity of particulate matter that has
25 accumulated within the particulate filter, and the regeneration timing determining section is further configured to determine the regeneration timing to regenerate the particulate filter when either the accumulated particulate quantity reaches a prescribed quantity, or the accumulated particulate quantity is less than the prescribed
30 quantity and the exhaust gas temperature is equal to or greater than the prescribed temperature.

17. The engine exhaust gas cleaning device recited in claim 12, wherein
the regeneration timing determining section includes an accumulated particulate
quantity section configured to detect the quantity of particulate matter that has
accumulated within the particulate filter, and

5 the regeneration timing determining section is further configured to determine the
regeneration timing to regenerate the particulate filter when either
the accumulated particulate quantity reaches a first prescribed
quantity, or
the accumulated particulate quantity reaches a second prescribed
10 quantity that is smaller than the first prescribed quantity and the
exhaust gas temperature is equal to or greater than the
prescribed temperature.

18. The engine exhaust gas cleaning device recited in claim 12, wherein
15 the regeneration timing determining section includes an accumulated particulate
quantity section configured to detect the quantity of particulate matter that has
accumulated within the particulate filter, and

the regeneration timing determining section is further configured to determine the
regeneration timing to regenerate the particulate filter when either
20 the accumulated particulate quantity reaches a prescribed quantity, or
the exhaust gas temperature is equal to or greater than the prescribed
temperature.

19. The engine exhaust gas cleaning device recited in claim 12, wherein
25 the regeneration timing determining section includes an accumulated particulate
quantity section configured to detect the quantity of particulate matter that has
accumulated within the particulate filter, and

the regeneration timing determining section is further configured to determine the
regeneration timing to regenerate the particulate filter when either
30 the accumulated particulate quantity reaches a prescribed quantity, or
the exhaust gas temperature is equal to or greater than the prescribed
temperature after a prescribed travel distance has been reached.

20. A particulate filter regenerating device comprising:

regeneration timing determining means for determining a regeneration timing to
initiate regeneration of a particulate filter by combusting particulate matter that has
5 accumulated in the particulate filter at least when the exhaust gas temperature is equal to
or greater than a prescribed temperature; and

regeneration control means for executing control to combust particulate matter
based on the regeneration timing determined by the regeneration timing determining
means.

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